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ART. VII. — *Boylston Prize Dissertations for the Years 1836 and 1837*. By OLIVER WENDELL HOLMES, M. D., Fellow of the Massachusetts Medical Society, and Member of the *Société Médicale d'Observation* of Paris. Boston ; Charles C. Little and James Brown. 1838. 8vo. pp. 371.

IN 1803, Ward Nicholas Boylston established a fund, affording an income of one hundred dollars a year, to be expended in prizes for Medical Dissertations ; the fund to be managed by the Corporation of Harvard University, and the prizes to be awarded by a committee of physicians, appointed by the Corporation. At first three subjects were proposed in each year ; and the premium awarded to the author of the best dissertation on each, was a gold medal of the value of thirty-three dollars. In 1815, the number of annual questions was reduced, at the suggestion of the Committee, to two, and the value of the medal increased to fifty dollars ; and so it continues to the present time. It would have been still better, if the whole sum had been appropriated to a single medal each year. The Committee, in 1815, recommended this change ; but the founder did not assent to it.

As it is, the Boylston medal has drawn out a considerable number of discussions, some of them of no small degree of merit. The questions proposed are such as the committee judge to be best suited to lead to valuable discoveries or important observations ; and entire impartiality in the adjudication of the premium is secured by having the names of the authors concealed until after the award is made, when the sealed packet, accompanying the successful dissertation, is alone opened. Unsuccessful authors are never known, unless they choose to avow themselves ; and thus they are spared any mortification, which might otherwise add to the disappointment of their failure. The volume before us contains three Dissertations, for which the Boylston premiums were awarded to the author in 1836 and 1837. It affords a proof of his industry as well as of his talents, that the author should be successful in obtaining three prizes in two successive years, gaining in the latter year both that were offered.

The first Dissertation is a "History of Intermittent Fever,"

so far as it is known to have prevailed in New England, on the question, as proposed by the Committee ; “ To what Extent, and in what Places, has Intermittent Fever been indigenous in New England ? ” For many years past, the only cases of this disease, which have appeared among us, except in a few peculiar situations, have been evidently caused by exposure elsewhere. There were some traditions, and some scattered notices, which seemed to imply that it was not always so ; but that, on the contrary, the early settlers of New England, had, in common with most pioneers in a new country, to encounter this among the other difficulties of their enterprise. The inquiry, therefore, involved more of antiquarian research than of recent history. The materials for the investigation were few, and of the most miscellaneous character. The few physicians who accompanied the early Pilgrims, seem to have had too much else to do, to employ themselves in writing for the benefit, or to gratify the curiosity, of their successors. There were no medical journals to receive occasional communications ; and to make a medical book was an undertaking in that day rarely accomplished, and in this new world not attempted till long after.

What notices there are of the early diseases of New England, are to be found chiefly in the incidental mention of them in the letters and journals of the first settlers, as collected in biographical memoirs, and local histories ; and in the traditions, which, in some instances, have been handed down and preserved by curious conservators of the sayings and doings of their ancestors. In these repositories of ancient occurrences Dr. Holmes has made a diligent search ; and he has succeeded in bringing together many facts, of which the record was scarcely known to exist, and in rescuing from oblivion others, of which the knowledge would soon have been irretrievably lost.

It may serve as an encouragement to the inhabitants of some of our new settlements to hope for healthier days, at least for their children, when their forests shall have more thoroughly decayed, to learn, that the same fever and ague, which now so seriously disturbs their comforts and enjoyments, once pervaded the most healthy parts of New England, from which it has wholly disappeared for more than a century. The justly celebrated Eliot contracted the disease in his missionary excursions to the Indians on the hills in

Newton ; where no trace of it has been seen for several generations.

Since the early forests were cleared off, Intermittent fever has appeared in New England only in a very few situations, in which some peculiar local cause has operated to produce it. An example of this kind occurred on the banks of the Connecticut River, in Hampshire county, Massachusetts. A dam was carried across the river, in 1792, at South Hadley, to aid the operations of a canal, in consequence of which the low grounds on the borders of the river were partially overflowed. For several years after, *fever and ague* prevailed to a considerable extent in the neighbourhood ; and so confidently was it attributed to the dam, that several of the sick persons recovered damages at law from the canal corporation, and ultimately the dam was removed by order of court, and the disease has rarely, if ever, originated there since.

The valley of the Housatonic River, in Berkshire county, has been still more productive of intermittents. The detailed accounts of these, given by Dr. Holmes, belong rather to the members of his profession, interesting as they are to them, than to our readers in general. But we cannot forbear to quote an amusing example of successful confidence in an empirical remedy, from the letter of one of his correspondents, written at the advanced age of eighty-seven years.

“About forty years ago,” writes Dr. Partridge, of Stockbridge, “a Mr. Smith, from the hills east in Connecticut, bought a farm, mostly tillage land, in the southwest part of Stockbridge, bounding east on the river, (west on a hill,) here raised some way above and below said farm ; no stagnant water near, fogs rare (except in calm weather), and more rarely reaching his house, on rising ground, so as to hide the morning sun. His wife of a sedate disposition, quiet and slow of speech, not readily disturbed and rarely from home. After about two years (1802 I think), the occurrence took place. I lodged in Tyringham, say about ten miles southeast from home ; in the morning rode a few miles northeast into Haycock Hollow, to see a patient, and return home down said vale through South Lee ; between 9 and 10 A. M., I met said Mrs. Smith, riding southeast up said vale, as I supposed, out only on a visit, and passed with only a ‘Good morning.’ I here was nine miles from home, and she nearly thirteen. The same day, at four o’clock, P. M., four miles northwest from home, I

met Mrs. Smith again, three miles north from her home. I stopped to say, 'Where have you been to-day? You must have been a round-about way, to be returning on this road.' She says, 'I do not know where I have been. A few days ago, the *fever ague* took me, and I was told, that if I would rise early in the morning, eat some crusts of bread and drink water, and take an horse, and crusts in my pocket, and ride all day, all the roads I could find which I never see before, and eat only crust and drink water, I should lose the fever ague.' 'Well, is this your fit day?' 'Yes.' 'Have you felt any ague?' 'No; a little before I see you in the morning, I might have a little chill; but I did not regard it, the sun was so warm and pleasant.' 'Any fever?' 'No; but may have drank more water than common with my crusts, and felt pretty well all day, but now am some tired.' 'Where have you been?' 'I do not know. After I saw you in the morning I rode on, and coming to the hills, turned and came back, took a road, went on north, till noon, or after, and turned about to find the way home, — going right, I suppose?' 'Yes, — farewell.' Desiring to know the issue of the strange impression on her mind, with the exercise and diet, I soon after went and inquired as to the event, and found that she lost the ague and fever that day, and had no more of it." — pp. 98, 99.

The second Dissertation, "On the Nature and Treatment of Neuralgia," gives scope to a different kind of investigation. A young man, just entering upon the practical duties of his profession, cannot of course be expected to do much in the way of discovery, by original observations, in reference to an obscure and not very frequent disease. All that is left for him to do is, to collect the best observations of others, and, by a skilful examination and comparison of them, to draw from them such a description of the disease, and of its character and treatment, as they afford the means for. This Dr. Holmes has done; and with such industry and ability, as to render his treatise highly valuable to the profession.

The third Dissertation, "On the Utility and Importance of Direct Exploration in Medical Practice," had been already published; and under rather peculiar circumstances. It obtained for its author the Boylston premium for 1836. Two other dissertations on the same subject, though not entitled to the prize as being the best, were thought by the Committee worthy of notice; and, a liberal medical gentleman having furnished the means, they awarded a prize of the same pe-

cuniary value to their authors. The three were then published, at the expense of the same gentleman, by the Massachusetts Medical Society, and distributed gratuitously, not only to all the Fellows of that Society, but also to every other regular physician in Massachusetts. To be distinguished as the successful one among such worthy compeers, is sufficient evidence of the value of this treatise in the estimation of those most competent to judge of it.

Like the others it was written for the medical profession, and is chiefly interesting to them, rather than to our readers in general. It gives a survey of the affections in which direct exploration is applicable, the extent to which it is required in consequence of the inadequacy of other means of investigation, and of the results to be obtained from the examination. Most of our readers must have often seen, if they have happily been too much exempt from disease in the last few years to have felt, the physician tapping on the chest of his patient, and then applying his ear, and listening wistfully, as expecting some wise suggestion from within. To many of them, all this has seemed like mere trifling or quackery, while others have been ready enough to suppose that valuable information is gained by it; although few, we believe, out of the medical profession, have any very distinct notion of the nature of this information, or of the principles on which the means of obtaining it are founded.

This knowledge we propose now to supply them; and, if their curiosity has been enough excited by seeing the process of thumping and listening (percussion and auscultation) to induce them to give us a hearing, we shall hope to make it all plain to them. We might do this chiefly in the words of our author. But, as we have already intimated, in writing for physicians, he has of course made use of the technical terms by which they avoid circumlocution and gain precision. We shall strive to make ourselves intelligible to the uninitiated, even though it may be at the expense of some more words, and of some loss of professional exactness.

The language of auscultation has been more encumbered with technical phraseology than any department of medical science. The later French medical writers, from whom we have derived a large portion of our knowledge on this subject, have shown a remarkable propensity to coin new words. Sometimes they doubtless obtain by this means a term, which

better expresses the qualities of the object they wish to designate. But, in many instances, the whole idea might be fully as well or better expressed by words already in use, and too often we get only new names for old ideas. The whole matter of auscultation has been peculiarly overburdened in this manner, by the use of new terms, coined with learned etymology from the Greek or Latin language ; and we have no doubt, that a knowledge of its real utility has been greatly retarded by so much erudite phraseology. We do not mean to intimate, that the author of these "Dissertations" has exhibited any of this silly affectation. It is quite otherwise. He has merely used the language as he found it ; and, writing for those to whom it is familiar, he had no reason to take any special pains to avoid or to explain it.

The principal methods of direct exploration, and the only methods of which we propose to speak, are *percussion* and *auscultation*. The others, *palpation*, *succussion*, &c., are either used too unfrequently, or their mode of application is too obvious, to demand our attention at present.

The principle, on which percussion is applied to the detection of disease, is sufficiently plain. Indeed, it is often used in the common affairs of life. The carpenter strikes his hammer against the wall, to ascertain where to drive his nail "in a sure place." The spirit-dealer knocks upon the head of his cask, to learn the quantity of liquor contained in it. With precisely the same view, the physician thumps the chest of his patient, that he may judge of the state of the organs by the sound which is given forth.

The chest is an enclosed cavity, containing, and in the natural state filled by, several organs of different degrees of density. Of course, the part corresponding to each organ gives a dull or a resonant sound, according as the organ is firm and solid, or light and porous. Much the greater portion of the chest is occupied by the lungs. They are of a light and spongy texture, partly filled with blood, and partly with air. The sound they emit is intermediate between that of an empty cavity, or one filled with air only, and a collection of fluid, or a solid organ. In the neighbourhood of the lungs is the heart on one side, and the liver on the other, both solid organs ; the latter, indeed, not strictly in the same cavity, but capable of pressing upon the others. If either of these is increased in size, so as to encroach upon the lungs,

the existence and the extent of the encroachment will be shown by a flat sound in the place of the natural resonance.

If the membrane which lines the cavity of the chest becomes inflamed, a fluid is gradually poured out into the cavity, compressing the lungs, and occupying their space ; and then a flat sound is the consequence. Or, the same space may be filled by air, introduced either by a wound, or as the effect of disease ; and then the sound on the other hand is unnaturally resonant. The structure of the lungs itself is also liable to be changed by disease. On the one hand it may be *emphysematous*, too much distended by air, when the sound is hollow. On the other hand, it may be rendered unnaturally solid, either by a pressure of blood, or by inflammation, or by the formation of tubercles ; either of which will cause the sound to be dull or flat in proportion to the extent of the disease.

It is not our purpose to go into particulars, and show how all the several affections are distinguished from each other. Such details belong to the physician, and must be studied by him with industry and care. The distinction is made partly by other considerations, and partly by differences in the percussion itself. We may give an example by way of illustration, of the extent to which this mode of investigation may be carried. We have said, that fluid in the chest, congestion of the lungs, inflammation, and tubercles, all cause a flat sound. How shall we know one of these from the rest ? The formation of tubercles is a slow process, and the disease they produce is chronic ; and it is attended by circumstances quite unlike those which ordinarily accompany the others. For this reason there can generally be little question between them. But this is not all. Tubercles are almost always first deposited in the upper portions of the lungs, while inflammation as generally occupies the middle and lower portions. In any case, therefore, where the disease has not advanced so far as to leave no room for doubt, if the flatness be in the upper part of the chest, the presumption is strong in favor of the existence of tubercles ; if in the lower part, it is something else. In like manner, a crowded state of blood in the lungs is ascertained, chiefly by means other than those we are now considering. Between a collection of fluid in the chest, the result of acute inflammation of the lining membrane, and inflammation of the lung itself ; that is,

between pleurisy and pneumonia, the distinction is not so easy. Both are acute diseases ; and both give rise to many of the same symptoms. Indeed, so much alike are they in these respects, that it was formerly said to be impossible to distinguish them. Yet the importance of their effects is widely different. The one is a grave disease and often destroys life, the other is rarely fatal. And the treatment required by each is often very unlike. Here, too, we are by no means restricted to the use of percussion. Other modes of examination serve to explain, or correct, or confirm, as the case may be, the results of this. But we must show what this can do.

We have seen that, in pleurisy, the flatness of sound is caused by a fluid poured out into the cavity of the chest, taking the place of a portion of the lung. The flatness is consequently complete so far as the fluid extends, and there stops abruptly. In inflammation of the lung the condensation, and the consequent flatness, are complete only at the part most highly inflamed, and diminish by a more or less gentle gradation towards the healthy portions. This flatness, too, is constantly observed in the same place, whatever may be the position of the body, whereas in pleurisy every movement of the body causes the fluid to flow to the lowest part, and consequently changes the seat of the flat sound. These different circumstances are not always enough of themselves to establish a perfect diagnosis between the two diseases. But they go far towards it ; and, taken in connexion with the results of the other principal mode of exploration, they rarely leave any just cause of doubt between them.

In detecting diseases of the heart, percussion, regarded by itself alone, will do little more than to point out an enlargement, without showing its precise character, or whether it be an enlargement of the heart itself, or a distention of the pericardium by a fluid. There are other means of making these distinctions, with a greater or less degree of certainty.

The organs of the abdomen are less concealed from observation, than those of the chest. The walls of the cavity are yielding, so that any considerable change in the size, or texture, or position, may be detected by pressure ; a mode of examination now learnedly called *palpation*. Percussion is often useful, however, in diseases of these organs. It enables the physician to discover their precise condition with

greater accuracy, to detect with more certainty the nature and extent of any enlargement of an organ, or the existence of any morbid growth, or the accumulation of a fluid.

From the almost constant use of percussion, in a large proportion of diseases, by most intelligent physicians, at the present day, and from the obvious principles upon which its proper application is founded, it would seem strange, that it should not have always been in use. But so it is. Until within the last few years, it was very little practised. Avenbrugger is said to have first introduced it as a new invention, in 1761. But his discovery excited very little notice until Corvisart called the attention of the profession to it, in 1808 ; and it did not come into general use until the publication of Laennec, in 1815. Since that time much has been written upon it, and much has been done to improve the art of practising it successfully.

At first, percussion was performed by striking with the ends of the fingers directly upon the part examined. But this is liable to serious objections. Besides that it sometimes gives pain, there is an uncertainty in the resonance, in consequence of the difference of texture in the several parts struck upon. The present practice is, therefore, always to interpose something to receive the blow. A variety of substances have been used for this purpose. An ivory plate has been much commended and much used ; others prefer a piece of India rubber ; and many use only a finger of the left hand. "Fingers were made before forks," says the proverb. The circumstance, that the finger is always at hand, while any other *pleximeter* adds something to the already cumbersome apparatus of the physician, is much in its favor ; though in general, that will practically be the best in the hands of any practitioner, which he is most accustomed to use.

The degree of resonance on percussion is very considerably modified in different persons by the form and bodily condition of the patient. The chest of a thin, spare person, gives a much louder and clearer sound than one which is well clothed with fat and flesh. All this is easily taken into consideration by the physician, so that he is in little danger of mistaking an accumulation without the chest for disease within. A comparison between the two sides of the chest

gives additional security against such a mistake. In some parts, it is true, the organs are different in the two sides ; but to a considerable extent, they correspond. It is also true, that the same state of disease may exist in the corresponding parts, so as to obscure the results of a comparison between them. But this is extremely rare. In general there is a marked difference in the sounds of the two sides in most cases of decided disease. To take advantage of this comparison, it is of course necessary, that the practitioner be accurate in his knowledge of the anatomy of the parts, or he may confound the flatness produced by striking upon a solid organ for that of diseased structure.

The practice of auscultation is founded upon principles of physical science equally well established. Sounds, which are caused by certain actions within the cavities of the body, are transmitted through the walls of the cavity, and are perceived when the ear is applied closely to the surface, or through the intervention of a proper instrument. These sounds are always alike under like circumstances, and are changed when the circumstances which caused them are changed. Hence the physician, if he render his ear familiar with the sounds caused by the internal actions of the body in a healthy state, will readily perceive a variation, when the part is diseased. What disease is indicated by any particular unnatural sound, he can learn only from repeated and extensive observations. But that there is a deviation from the natural state, he will perceive at once ; and the accumulated observations of all the physicians, whose attention has been directed to the subject, have now gone far to explain most of the deviations which have been noticed.

These principles are chiefly available for practical purposes in reference to the actions of the lungs and the heart. The air in passing through the windpipe gives rise to a certain sound, which in health is always nearly the same. This sound is modified in the smaller tubes (the *bronchia*) into which the windpipe divides, and again still more decidedly in the little air vesicles in which the *bronchia* terminate, and which occupy every part of the lungs. These several sounds are readily perceived and easily distinguished by a *practised* ear, applied to the corresponding part of the chest and neck. Hence we have *tracheal*, *bronchial*, and *vesicular*

respiration ; and if these are heard only in their appropriate places, and in a right degree of force, they indicate a healthy state of the parts.

When a portion of the lung is diseased, the current of air in that part is either obstructed or its natural force changed, and of course the sound is modified. Hence, by applying the ear extensively over the chest, we are enabled to detect the existence, and the precise seat, and generally the nature, of the disease. In inflammation of the lungs, the air cells are for the time obliterated in the part affected. As there are no vesicles for the air to enter, there is no vesicular respiration. But we have, what would not at first view be anticipated, *bronchial* respiration in its stead. In the healthy condition of the lungs, the porous character of the vesicular structure renders it a bad conductor of sound, so that the sound caused by the air in the bronchial tubes is not transmitted through them. But when they are consolidated by disease, they become good conductors of sound ; and, at the same time, the morbid condition of the parts gives a greater degree of intensity to the sound itself.

Bronchial respiration, then, heard in the place of vesicular, always indicates — inflammation ? That would be a simplicity in the art of distinguishing diseases, which nature does not tolerate. But it always indicates a consolidation of the lung from some cause, and inflammation is one of the most frequent of the causes. Another, and unhappily a frequent cause, is the deposition of tubercles, in incipient consumption. As in regard to percussion, so in reference to auscultation, there are means of distinguishing between the several morbid affections, which give rise to phenomena in many respects similar. These it is the business of the physician to study, and they often exercise his ingenuity and industry not a little. But it would lead us too far to attempt to explain them here.

There are other morbid sounds in the respiration, besides those which arise from what we may call the misplacement of such as are healthy. When the membrane which lines the air passages is inflamed, as in common cold or catarrh, its surface is at first unnaturally dry ; and in that state the current of air through the tubes gives rise to various sounds more or less musical, which are the different modifications of

the *sonorous râle*.* At a later period the membrane becomes more than naturally moist, and the passages are crowded, and more or less obstructed, by an adhesive fluid. In this state, if the ear is applied to the chest, the air is heard bubbling through the mucus, and this is the *mucous râle*. Inflammation of the substance of the lung, in its earlier stage, before the air vesicles are obliterated, is accompanied by a still different *râle*, the *crepitous*. In the advanced stage of consumption, a cavity, sometimes more than one, is formed in the lungs, at first filled with purulent matter, which is afterwards discharged through an opening into a bronchial tube. The air as it rushes into, and out of, this cavity in every respiration gives rise to a peculiar hollow sound, which is the *cavernous râle*. If the cavity is very large, and the opening into it from the bronchia small, the sound resembles that caused by blowing into the mouth of an empty bottle (*amphoric resonance*). The same sound is produced when air escapes into the cavity of the chest, compressing the lung ; which is sometimes the result of an accidental injury, and sometimes of ulceration.

The sounds of the voice give still farther aid in detecting and distinguishing the diseases of the lungs. In the healthy state of those organs, no peculiar sensation is communicated to the ear, unless it be applied over the windpipe, or over the larger bronchia at the root of the lungs. But where a portion of the lung is condensed, whether it be by inflammation, or tubercles, or by the infiltration of a fluid into its substance, a resonance of the voice is transmitted to the ear at the corresponding part of the chest, resembling that from the bronchial tubes, and thence called *bronchophony*. When there is an empty cavity in the lungs, the sound is still more remarkable. The voice seems to enter the ear, as if the mouth of the speaker were applied closely to it. This speaking from the chest (*pectoriloquy*), when strongly

* There is a good deal of difference of opinion as to the best term to designate these morbid sounds. Some writers use the English word *rattle*, and others the Latin *rhonchus*. We prefer to adopt the French *râle*, used by Laennec. Where the thing to be expressed is new, it is better to adopt a new word, than to assign a new meaning to a word already in common use. As no new English word has been proposed, we can only do this by borrowing from a foreign language ; and the French term was first introduced, and is more extensively used, and more agreeable to the ear than the Latin.

marked, is a very decided characteristic of confirmed consumption, and sometimes gives evidence of a hopeless condition of that deceptive disease, long before the symptoms have led the patient to feel any apprehension. Dr. Williams says of it, "More than once has it occurred to me, that the very words, which in that delusive confidence with which this malady enshrouds its victims, ridiculed my examination of the chest, roundly saying, that nothing ailed them there, have belied their meaning, and, coming from the breast, have told a far different tale." A modification of the voice, of a different character, is observed in some states of the chest in pleurisy. The voice comes to the ear through the walls of the chest, not in its clear natural tone, but in a vibrating, thrilling, squeaking sound ; like the bleating of a goat (*hægo-phony*).

Auscultation is applied to the investigation of the diseases of the heart as well as those of the lungs, although the actions of this organ are more obscure, and the phenomena which attend them are less understood. On applying the ear over the region of the heart, we perceive, in the first place, the impulse of the heart beating against the ribs ; then we hear two distinct sounds, following each other at every pulsation, in regular succession. By habitual practice we learn to distinguish the natural force of the impulse, as well as its natural extent and limits, and the regular cadence or rhythm of the successive sounds, and to appreciate the difference if either is changed by disease. The diagnosis of the particular diseases of the heart and large arteries is still involved in much obscurity. Considerable progress has been made in the knowledge of them within the last few years, and much may be hoped from the investigations which are constantly going on. As it is, we are in general able to distinguish with confidence between the actual changes of structure in that organ, and the nervous, and sometimes imaginary affections, which have often, in past times, been confounded with them. And, in many cases, if not in most, we can ascertain the particular character of the morbid affection, and give a tolerably sure prognostication of its termination. There is here consolation in the fact, that some of these diseases, which were formerly classed together without any other distinction than "diseases of the heart," and regarded alike with terror,

as surely fatal, excite very little alarm, now that their true character, and the means of distinguishing them, are better known.

Enlargements of the heart, or its envelope, are easily detected by the greater extent over which the impulse and the sounds of its action are perceived, and by the absence of the sound of respiration, in consequence of the encroachment of this organ upon the lungs, as well as by an enlargement of the corresponding part of the chest, and a change in the sound on percussion. But a knowledge of the general fact of an enlargement is not enough. We wish to know, whether it be a simple dilatation of the cavities of the heart, or the thickening of its muscular substance, or a distention of the pericardium by a fluid. And each of these has its appropriate, characteristic marks, so as to leave little cause of doubt between them. The membrane which covers the external surface of the heart, and that which lines its internal cavities, and occasionally also the muscular substance itself, are liable to inflammation; its numerous valves are exposed to various diseases; and both its cavities and its orifices are subject to unnatural dilatation or contraction. Most of these changes can be detected with a greater or less degree of confidence during life, and some of them are capable of successful treatment. We shall not trouble our readers with a description of the different sounds heard in the several diseases, as we have done in regard to the lungs; partly because these sounds are less fully understood, and partly because we are afraid of wearying them with so many details.

Let us now see how these two modes of exploration, *percussion* and *auscultation*, bear upon each other. We have thus far examined them only in their separate capacities. In their relations to each other, they do much to correct or confirm the results obtained from either separately. In all diseases of the chest, besides the knowledge obtained from the symptoms, we have two distinct modes of observation. If the inferences drawn from the sounds on percussion are confirmed by applying the ear to the chest,—and, in regard to the lungs, we have both the respiration and the voice to reveal their secrets to us;—and especially if these inferences are in accordance with the symptoms, we may feel an assured confidence, that we have come to a just knowledge of the disease.

A man has pain in the side, with difficulty of breathing, attended by more or less fever. All this may arise either from rheumatism in the muscles, or from pleurisy or inflammation of the lung ; and the symptoms alone will not always tell which is the disease. If it be rheumatism, we are not likely to find any external sign of it, except perhaps some feebleness of respiration, on account of the difficulty of expanding and contracting the chest. If the disease be pleurisy, we shall have flatness on percussion, in the lower part of the side affected, changing its place if the patient changes his position, so as always to keep the lowest part ; absence of all sound of respiration in that part, while the respiratory sound is louder than natural in the surrounding parts ; and generally hægophonic resonance of the voice. If it be inflammation of the lung, there is dulness on percussion, increasing, as the disease advances, to flatness, retaining the same place in all positions, not bounded abruptly by healthy resonance ; crepitous *râle* in the respiratory sounds, at first, followed by bronchial respiration and bronchophony. These several characteristics, however obscure they may seem in the description to many of our readers, to an intelligent and experienced observer will perfectly designate the character of the disease, so as to leave no doubt whatever in his mind. The disease may, indeed, be complicated, and then the evidences of its nature will be so too ; and so will be the treatment that it will require.

A more interesting case is unhappily also much more frequent. A youth, just ripening into manhood, gradually loses his ruddy color and vigorous strength ; he loses flesh, and occasionally a slight cough alarms the fears of his friends, though he himself thinks it nothing but a trifling cold. On examination, a slight dulness is observed at the apex of one lung, — so slight as scarcely to be appreciated except by comparison with the opposite side. The respiratory sound is at first remarkably feeble at that part, or a little later there is bronchial respiration and bronchophony. These are sure indications, that the way is already prepared for consumption. Still there is hope, if a proper regimen can immediately be begun and persevered in ; for direct remedies can here do but little. Too often, either the patient is not alarmed early enough, or, in despite of every precaution or effort, the disease advances. Bronchial respiration is followed by a muco-

crepitous, and then by cavernous *râle*, bronchophony by pectoriloquy, and so on till life is destroyed, each step of the destructive process being clearly revealed by the sounds elicited in successive examinations.

But what avails it thus to trace the melancholy progress of a disease which we have no power to arrest? There is some consolation in knowing the just amount of what we have to fear, however great that amount may be. And, if we have no remedies that are able to reach this formidable disease, who shall say, that we shall never have them? The first steps towards acquiring them must be taken in obtaining a full knowledge of the disease. We can now do something towards prolonging life and diminishing suffering. We can at least abstain from doing harm by vain attempts to effect what is impossible. Above all, by an early discovery of the disease, we may teach our patient to flee from the danger before it overtakes him. In very many cases, a careful examination of the chest will detect unequivocal evidence of approaching consumption, long before the symptoms excite any considerable apprehension. At this early period much may be done to avert the danger. And if the attention of physicians and patients were more directed to this period, much more might doubtless be done to diminish the fatality of consumption than ever has been.

If it be asked, on which we are the most to depend for the elucidation of disease, the investigation of symptoms, or an examination by physical signs, we answer, that there is no opposition whatever between them. The use of direct exploration does not preclude a careful inquiry into the symptoms of the case. On the contrary, it prompts to a more full investigation. In practical life, it certainly is true, that those physicians who most constantly make use of the benefits of exploration, are not only equally, but generally much more, thorough in their inquiries into all the circumstances of a patient's health, than those who neglect or ridicule it. This may be partly because those, who are the most zealous in their researches, are the most willing to take the trouble requisite to acquire a new method of investigation, when it promises adequate advantages. But this is not the whole of it. There is something so grateful in comparing the results of different modes of examination, that, were it a mere matter of specula-

tive philosophy, the mind would necessarily be stimulated by the comparison.

There are still some physicians, who laugh at the whole matter of direct exploration as either idle foolery, or empiricism. But they are those, who have never taken the pains to learn how to practise it; were there no more advantage in it than they know how to obtain from it, their ridicule might be better founded. Whether their ignorance be the effect of indolence or incompetence, it becomes us not to say. But, while they laugh, others will learn; and the time is not far distant, when the physician, who is unable to practise percussion and auscultation, will be held to be unfit for his profession. We have not written these remarks in the expectation of converting such men to our views. Nor, indeed, has it been our leading object to instruct the profession generally. Our aim has been, to give to unprofessional readers some notion of these new methods of examination. Neither our limits nor our plan admit of going fully into the details of the subject. But we have hoped to do enough to show, that the means of acquiring an accurate knowledge of an extensive and highly important class of diseases are vastly improved by the introduction of this mode of examining them.

ART. VIII. — 1. *Nordisk Tidsskrift for Oldkyndighed, udgivet af det Kongelige Nordiske Oldskrift-Selskab. Andet Bind.*

(*Bemaerkninger over de Venetianerne Zeni tilskrevne Reiser i Norden*; af C. C. ZAHRTMANN, Capitainlieutenant.) Kiobenhavn: 1833.

2. *The Journal of the Royal Geographical Society of London. Volume the Fifth.*

(*Remarks on the Voyages to the Northern Hemisphere, ascribed to the Zeni of Venice.* By Captain C. C. ZAHRTMANN, R. N., Hydrographer to the Royal Danish Navy; and communicated by him. Read 27 April, 1835.) London: 1835.

RIVAL pretensions to the glory of having discovered the New World are fast springing up, or beginning to be urged with